

Investigation of astigmatism by Purkinje figures

Astigmatism is caused by irregular flexuosity (circumflexion) of eye cornea in perpendicular planes (= *regular astigmatism*; innate or a result of intraocular surgical intervention) or in planes having another angle (= *irregular astigmatism*; after inflammation of cornea or in keratoma). Vision in astigmatism is liken to looking into the mirror with undulated surface. Planes of smallest and biggest flexuosity (circumflexion) are called axes of astigmatism.

The cornea doesn't have a shape of regular sector of sphere, but of rotation elipsoid. The flexuosity of cornea, as well as refraction of light rays in vertical plane is usually bigger than in horizontal plane (astigmatism according to the rule). This difference is normally about 0.5 D = *physiological astigmatism of cornea*. If the flexuosity of cornea is bigger in the horizontal plane than in vertical plane, it is astigmatism against the rule.

Astigmatism of cornea and lens (= *total astigmatism*) may be roughly investigated by Purkinje figures – concentrated circles (Fig. 1) and a spider made by lines intersecting in the middle (Fig. 2).

Needs

Purkinje figures.

Methods

Using Purkinje figures we can subjectively investigate the total astigmatism in examination of punctum proximum and punctum remotum in the planes perpendicular to each other.

In regular astigmatism according to the rule we can see better the vertical parts of circles and lines of the spider, since the flexuosity of cornea is bigger in the vertical plane. In regular astigmatism against the rule we can see better the parts of circles and lines in horizontal plane.

Fig. 1.

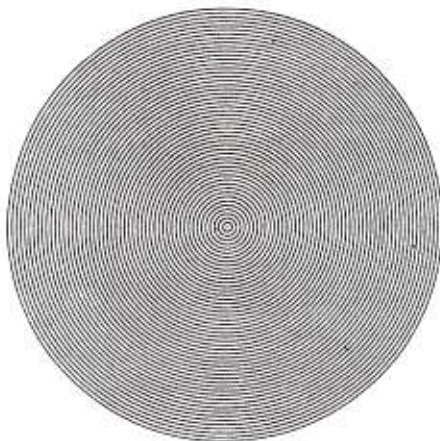


Fig. 2.

